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ABORIGINAL ARCHITECTURE IN THE UNITED STATES.

BY

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Architecture has been defined by Fergusson, perhaps the greatest of its historians, as "ornamented and ornamental construction." Under that definition the houses of that part of the American aborigines who inhabited what is now the United States have no standing; since they were strictly utilitarian and were neither ornamented nor ornamental. It is true that in the highest types of Pueblo houses we can detect the first faint glimmerings of that art whose presence, according to the definition, constitutes the difference between house building and architecture, but if we broaden the field a little and make the terms synonymous we find that the houses of the American Indians occupy a very important place in the history of architecture and present a phase of human activity which cannot be ignored in the study of that art.

Fergusson himself, some thirty years ago, lamented the absence of knowledge concerning the houses of the American aborigines, and complained that his great History of Architecture was incomplete because it lacked that one chapter. Even then the great temples of India, once so great a mystery, were better understood than the ruins scattered over the southwestern part of the United States and in Mexico and Yucatan. That chapter is not yet written, but year by year investigation and study have progressed, and eventually some master hand will gather together the vast amount of data which has been accumulated and will condense it into a few hundred printed pages. In the meantime we can get a glimpse here and there of the meaning of part, at least, of what we have.

More than twenty-five years ago Lewis H. Morgan, often named the father of American archaeology, called attention to the false views then prevailing, and his work on "Houses and House Life of the American Aborigines" was the starting point of all later students. He referred particularly to the higher art of Mexico and Central America, which had always been discussed on the lines—picturesque but false—so ably sketched by Prescott in his Conquest of Mexico. The architecture of that region was interpreted through the glowing accounts of the Spanish conquerors, and the resulting exaggerated views have thrown a kind of reflected light on

the ruins found in New Mexico and Arizona. These deserted groups of well-built stone houses appealed to the imagination of the early explorers and were linked to the name of Montezuma and ascribed to the Aztecs. By others, the people who built them were regarded as a race apart, who were swept from the earth by some mighty catastrophe. The rank and file of the Navajo Indians, who now live in that country, have much the same idea: if you ask one of them what became of the "narcuzzi"—the people who lived in the ruins—he will tell you that a great wind arose and swept them all away. Fortunately the houses were left, and from a study of the ruins we can tell pretty closely who and what the people were. In Morgan's time all kinds of exaggerated accounts of the ruins were current, as some of them are to-day; but it was said then in one of the leading magazines that "In size and grandeur of conception they equal any of the present buildings of the United States, if we except the Capitol at Washington, and may without discredit be compared to the Pantheon and the Colosseum of the Old World."

At the present day these ideas have almost disappeared. We know that many of the ruins were occupied within the historic period; in fact, we can say that with a few exceptions we know of none which antedate that period, although there is a fair presumption that many of them did. We know that most of the old villages were inhabited by the ancestors of the Pueblo Indians now living in Arizona and New Mexico; that the old house-builders lived under much the same conditions that prevail to-day in that region; and that the cliff dwellings were merely an episode in their history. Knowing this, in the pueblo villages of the present we can study the ruins of the past.

Within the great area now known as the United States, there were at the close of the fifteenth century perhaps half a million Indians, divided into numerous tribes, each with its own habits and customs, and each building its own style of houses. Aside from the villages of the sedentary or pueblo tribes, few of these rose much above the rank of rude domiciliary huts, enlarged perhaps or slightly changed to form the religious edifices or churches of the people. Instead, therefore, of glancing over a list of perhaps a hundred different but rude types, let us look a little more closely at the highest and at one of the lowest classes, both found within the same region and subjected to the same geographic environment—the houses of the Pueblo Indians of Arizona and New Mexico, and the hogans or huts of the Navajos.

Although purely aboriginal in its origin, hardly less so in its

development, pueblo architecture affords one of the best examples in the history of art of adaptation to environment—to the physical characteristics of the country where it is found; and such adaptation to the country and to the life and wants of the people who practise it is the great principle underlying every school of architecture. There is no art which has the same value to the student of archæology and none which makes so clear a record of a people's life and aspirations as the art of house-building. The record is especially valuable because it is made unconsciously; certain wants are met in a certain way, or in a variety of ways, and the various attempts to meet the changing conditions are all crystallized and embodied, as it were, in the expedient which is finally adopted, so that each detail contains within itself a record of the steps which led up to it. This condition is found all over the world, as, for example, in forms employed in stone construction which were clearly first used in wood, and while well adapted to the latter are hardly suited to the former. Yet they survive year after year and far into the centuries through that conservatism in art which forms the second and not least important element in its development, for without the conservative or conserving element there would be no progress in evolution.

The complete adaptation to its peculiar environment displayed by the pueblo system of architecture shows that it has long been practised under the same conditions as those now prevailing; if not in the same region, then in one like it. It is the product of a primitive people, and like all such people the pueblo builders were and are now peculiarly sensitive to their physical environment and their topographical surroundings. They are truly children of nature and unconsciously put themselves in accord with natural conditions with a completeness and celerity, which is almost incomprehensible to a people whose lives are so largely artificial as our own. Upon such a people the materials supplied by nature are apt to exercise a larger influence on the house-building art than the ideas to which the material was applied.

The ancient pueblo culture was confined practically to the limits of the plateau province, covering perhaps 150,000 square miles in the southwestern part of the United States, and was absolutely dependent upon the peculiar geographic conditions found there. Hundreds of the old villages were constructed of the tabular sand-stone found in natural quarries at the bases of the cliffs throughout that region. This stone breaks into small fragments of regular form suitable for use in the simple masonry of the pueblos, without

any labor other than the mere collection of the pieces. This abundance of material, acting in conjunction with certain social forces, prominent among which was the necessity for constant defence, has produced the many-storied hive-like villages which form one of the most picturesque features of New Mexico.

There are at present some eighteen inhabited villages scattered along the valley of the Rio Grande, and a dozen more in the west. Nearly all of them are located in the midst of broad open valleys. This type represents, however, the latest stage in pueblo growth, a stage reached by most of the tribes only within the historic period. Since the earliest times of which we have a record the Pueblos have been subjected to more or less pressure from surrounding wild tribes, who found in the villages convenient storehouses of food, and in the villagers a contemptible foe. It was under this pressure that the great valley pueblos were developed. But many of the earlier types can still be traced in the ruins, and some of them are still in use in the western part of the pueblo country.

From the great amount of data which have been collected it is now possible to form some idea of the sequence in development exhibited by the ruins, although it is impossible as yet to establish a chronologic order for the various types. It seems probable that in the early days of pueblo architecture small settlements were the rule. These were doubtless located in the valleys on sites most convenient for horticulture, each family or gens occupying its own little village. Incursions by neighboring wild tribes or by hostile neighbors gradually compelled the removal of these little settlements to sites more easily defended and also forced the various related families to band together. At a later period the same motive, emphasized perhaps, brought about a further removal to still more difficult sites and the villages were placed on the summits of almost inaccessible *mesas*, as in the case of the Moki village of Shipaulovi. At the time of the discovery by the Spaniards and their conquest of the country the Mokis lived in villages located on foothills of the mesas, and many other settlements occupied similar sites at that time. Soon after, the people moved to the tops of the mesas. Some of the villages were in this stage at the time of the discovery, notably the Pueblo of Acoma. Finally many villages whose people spoke the same language combined to form one larger settlement, which, relying now upon size and numbers for defence, was again located on the most convenient site, in the broad open valleys surrounded by fine arable lands.

Since New Mexico came into our possession and the pressure of

the wild tribes has been removed from the Pueblos the process has been much quickened, and the old mesa villages are being rapidly abandoned. Indeed, along the Rio Grande, where the settlements were near enough together to render mutual aid, the movement had commenced before 1846, and villages of quite small size were located in the open. The progress in this direction in the past few years has been very great, and in another generation the old pueblo architecture will be known only through its ruins.

The process which I have sketched was by no means continuous. The whole population was in slow migration, but not in the sense in which the term has been applied to European and Asiatic tribes. There was seldom a movement of the people in mass, but a constant although very slow change of base, generally without any definite end in view. Outlying settlements were established for the purpose of farming neighboring fields; these might be found more convenient than the parent village and would eventually surpass it in size and importance, only to be supplanted in turn by their own subordinate settlements. It was an unconscious migration. The tribe might move only twenty miles in three or four generations, or, on the other hand, it might move a hundred miles in a week. But viewed across the centuries the movement may be regarded as constant. It was this slow migration which produced the thousands of ruins scattered over New Mexico and Arizona. These have been used as a basis for estimating a former population of 250,000, or even half a million, although the Pueblos never numbered over 30,000, and there are now 10,000 of them. A band of 500 Indians might leave the remains of fifty villages in the course of a single century.

With the first concentration of scattered houses into villages a new element in pueblo architecture made its appearance. This is the summer shelter, occupied only during the farming season and abandoned for the home village on the approach of winter. This custom was brought about by the scarcity of good land and the difficulty of finding it near the home settlements. Thus many were compelled to go some distance away to carry on their farming operations. The slow migration referred to doubtless had its origin in this custom. The summer shelters form an invariable feature of pueblo life, ancient and modern. They are of various forms, but in function they are all alike. In Moki they are brush shelters; in Zuñi they are single rooms in old ruins maintained in good order while the rest of the structure sank to decay; under favorable geological conditions they become cliff ruins; under other circum-

stances they are cavate lodges. But in one form or another they are always found in connection with the permanent homes of the Pueblos.

The unit of pueblo architecture is the single cell, whether it occurs alone, as in the summer shelters, or in great masses like the huge structures which give shelter to 1,500 souls or more. Sometimes the cells are arranged not in clusters, but in long rows, as in most of the Moki towns. In such cases the houses are usually only one or two stories high. In Zuñi, the largest of all the pueblos, the houses occur in irregular groups and, as a rule, are two stories or more in height. Some of the Rio Grande villages are laid out on a similar plan. As none of the villages except Taos and Acoma now occupies the same site that it did when discovered some 350 years ago, they are in a sense all modern, and reflect modern rather than primitive conditions.

The old architecture has been much influenced by contact with the Spanish and afterwards with the Mexican population of New Mexico. The old plan of terraced construction, a characteristic of the pueblo system, is still apparent, the upper stories being set back from the lower in a series of receding steps or terraces, but the former requirement that the first tier of rooms should afford no opening on the ground has been done away with since the possibility of an onslaught by savage foes has been removed. Formerly the only means of access to the first terrace was by a ladder to the roof, thence by another ladder into the interior, and as these ladders were easily removed each house cluster was in effect a fortress. The terracing of houses reaches its greatest development in the villages of Taos, on the upper Rio Grande, and Zuñi, near the Arizona boundary. At one place in the latter it is possible to count seven stories by passing from terrace to terrace, but a plumb-line dropped from the roof of the uppermost one would pass through only four rooms to reach the ground.

As a rule the masonry of the eastern villages is covered with a finish of mud mortar, giving them a pleasant appearance, but conducing to poor stone work. In most of the large ruins found in that country no mortar was used upon the surface, but the stone itself was beautifully finished by pecking the surface and rubbing it down after the blocks were placed in position. The same method prevailed in some of the cliff ruins. The finest masonry in the pueblo region is found in the Chaco ruins, a group of old villages in northern New Mexico. Even there, however, the result was obtained by careful selection of material and not by skill in its use.

The best walls usually consist of an outer and an inner face with a rubble filling between. The Chaco ruins belong to the same class as the great valley pueblos, like Zufi and Taos. In other words, they are the remains of important home villages, occupied at a time when the people were driven to abandon their smaller settlements and to congregate in large numbers for mutual defence.

The masonry of the ruins exhibits two distinct types. One consists of carefully selected stones of uniform size laid up in the manner already indicated. In other walls, or sometimes in other parts of the same wall, a beautiful face was obtained by the use of small spawls driven in between layers of selected stones not much larger in size. These walls have the appearance, at a little distance, of a fine mosaic. Occasionally the two systems are combined to form a peculiar banded construction. Here, in the highest type of masonry attained by the ancient builders, we have the birth of that architecture which was defined by Fergusson. In other words, here, for the first time, the old-time architect bethought him to make his construction ornamental, and he succeeded. There is an earlier stage in which the spawls were used only here and there, and appear to be a convenience or a use of old material on hand rather than a striving for an ornamental effect. Unquestionably this finely finished masonry must be ranked far above the plastered surface, no matter how well the latter may be done.

Perhaps the highest type of surface finish is that found in the Casa Grande ruin, on the Gila River in southern Arizona. The building was constructed of rammed earth and has a clear historical record of more than two centuries. Even so long ago it was in ruin, and not greatly different in appearance from what it is to-day. But although the interior walls have been exposed to the weather for more than 200 years their smoothness and fine finish attract the attention of all visitors to-day, as they attracted that of the first Spanish chronicler, who wrote of them, "The walls shine like Pueblo pottery." Just how this durable and fine finish was secured is a mystery which many American builders in that country would like to solve. The exterior walls were not so protected. They are much worn and seamed by the weather and have been undercut at the ground level to a depth of two feet or more. When the ruin was repaired under my direction, some years ago, I took measures to prevent this weathering, but the inner walls I left just as they were, and they will certainly last a generation or two, if not a couple of centuries, longer.

In the inhabited villages of the West the masonry is usually

rough, but the old system of building is much more closely followed. In the Moki villages openings in the first tier of rooms giving directly upon the ground are comparatively rare, and the number of ladders in use is correspondingly increased. These ladders are used everywhere, not only by the men and women of the village, but even by little children who are hardly able to walk, and by the dogs, of which there appear to be a dozen, more or less, for every man in the place.

The building of a house is not such a simple affair as might be inferred from the finished product. Descent and inheritance are in the female line. In fact, the women own all the property save a few personal belongings of the men and their horses. The women, therefore, build the houses, but a house building is always made a social occasion, much like the log-raising of our early days, when the frontier was on this side of the Ohio River. Female friends from far and near gather to take part in it, and usually a man or two of the family is impressed to do the heavy work.

When the material has been brought to the site and everything is ready the priestess of the clan must be notified, and an announcement to the neighbors is made from the house tops by a crier. The chief of the village provides four eagle feathers with a short cotton string attached to the stem of each. These are sprinkled with sacred meal and prayers are breathed upon them for the welfare of the occupants of the house, and that the walls may take firm hold upon the ground. The feathers are laid at the four corners of the house and a large stone is placed over each one. The place where the door is to be is marked by bits of food on each side of the opening, this ceremony being accompanied by prayers to the sun that there may be always an abundance of food within. The lines where the walls are to be are marked on the ground by particles of bread and other food mixed with the native tobacco, the sacred plant. The women then proceed to lay up the walls. When the structure reaches a height of seven or eight feet the roof beams are put in place. These beams are often brought great distances, for suitable timber is not to be found everywhere. According to the Moki traditions the timbers used in the construction of the mission buildings erected in the 17th century were brought on the backs of men from the San Francisco Mountains, more than a hundred miles away. Some of them are still in use in native structures, (for the Mission buildings have long since disappeared,) and are still pointed out to the curious.

The roof beams are covered with smaller poles, and with brush

and grass, and are finished with earth, a mud floor is made inside and the walls are plastered with the same material, the whole being nicely smoothed by hand. Formerly a custom prevailed of leaving a small space in the wall bare, under the belief that one of the gods came and finished it. Although this spot remained as it was left, it was supposed to be covered with an invisible plaster. When the house is completed to this point four more feathers are prepared and tied to a short stick, which is inserted over one of the central beams. The feathers are renewed every year in December, when the sun begins to return northward; that is, at the winter solstice. The ceremony of "feeding the house" is then performed. This is an offering to the sun and consists of placing bits of food among the rafters, with prayers to the sun that he will not hasten the departure of any of the occupants to the underworld. A fire-place is then built in one corner and a bin-like arrangement containing three or four flat stones for grinding corn in another. The house is then ready for occupancy. The door is merely an opening closed by a blanket in cold weather. Rude as it is, the interior of a pueblo house is quite comfortable.

Oddly enough the ground plan of a village is dictated by the number of girls who live there. Not only do the women own all the property, but when a man marries he goes to the home of his wife and becomes an adopted member of her family. A family in which there are many girls must increase and multiply, and as house space becomes inadequate must build new rooms adjoining, while one in which there are only sons must become extinct in the next generation.

In its general outlines the pueblo system of architecture can be traced through its various stages, from the primitive earth lodges, like those in use by the Navajos, up to the many-storied clusters which mark its greatest development. The various steps have followed from a simple and direct use of such material as was immediately at hand, combined with conditions which compelled the frequent use of that material, among them the slow migration which was in progress in all the tribes, and the ever present necessity for defence against a strong foe. The results attained testify to the patient industry of the pueblo builders rather than to skill in construction, for the best walls which have been found are the result of careful selection of material only. It will be interesting now to look at the Navajos, who for many generations have lived under the same physical conditions.

A greater contrast than that between the puny and rather feeble

Pueblos and the athletic Navajos could hardly be found. Magnificent six-footers, living in the saddle from their earliest childhood, descended from a long line of freebooters and robbers who preyed upon all the surrounding tribes, the Navajos fear nothing save the anger of their gods or the ill opinion of their fellows.

Prior to our conquest of the country in 1846 they lived chiefly by war and plunder. The Mexican settlements along the Rio Grande and the Pueblo villages of the same region were the principal contributors to their welfare, and the thousands of sheep and horses which were stolen then formed the nucleus of the immense flocks and herds which constitute their wealth to-day. It took a long time to persuade the Navajos that a change in their methods of life must follow the new régime, and the war which followed was brought to a close only by a resort to the most drastic and barbarous measures on the part of our troops. The fields of the Indians were burned over, their orchards were cut down, and squads of soldiers were stationed at every spring and water hole to bayonet the sheep and horses that came to drink. Eventually the Indians were brought to terms, and we have had no real trouble with them since, although almost every year the troops scurry out into the Reservation to keep down some threatened outbreak.

The houses of these people are earth-covered huts, and as a rule each one stands by itself. They are usually so hidden away that a traveller who is not familiar with the customs of the Indians might journey for days and not see half a dozen of them, and he would be apt to get the impression that the country is practically uninhabited. He might hear the bark of a dog in the distance, or far away on the mountain side he might see a pillar of smoke like that rising from his own camp fire. Yet the tribe numbers more than 12,000 souls, and there was probably no time during the day when several pairs of eyes were not watching his movements. Were he to fire his gun the report would be heard by several hundred men. Probably this custom of partly concealing their habitations is a survival from the time when the Navajos lived in momentary expectation of reprisals on the part of their victims.

The hogans intended for permanent use are always constructed after a fixed pattern, no variations from which are permitted, although in the valleys it is often difficult to procure suitable timber. They are invariably built with an entrance made in the fashion of a dormer window. When the Navajos finally realized that they would not be allowed to plunder their neighbors they utilized the enormous flocks they had and became a pastoral people. Under

recent conditions they are becoming farmers and, like the Pueblos, they have developed the use of farming shelters, which are commonly half huts. The Navajos never congregate into villages, however, and the movement from the winter hut to the summer shelter is merely a change from one part of the country to another. Sometimes the summer shelters are merely rude shelters of cedar brush and logs. Sometimes they are regular winter huts in all respects save the final earth covering. But the summer houses can always be distinguished from the regular huts because the latter must and invariably do front the east, no matter if by so doing they look directly into the side of a hill. In fact, rude as the winter huts appear, every detail in them is dictated by an elaborate ritual and strict ceremonial requirements.

Among these Indians there are many myths and legends of wonderful houses built by the gods. In them turquoises and pearly shells were used, as were also the filmy mists of dawn and the gorgeous hues of sunset. They were covered with sunbeams, and rainbows, and everything beautiful in the earth and sky. In the construction of a hut to-day the door is invariably placed toward the east, in order to allow free access to the kindly influences of the God of Dawn. Each timber must be placed in its regular order and in a prescribed way, the neighbors and friends of each builder assisting in the construction.

A great change is now taking place among the Navajos, for, owing to the present conditions, they can no longer make a living from their flocks, and they are slowly but surely being forced to cultivate the land. The contrast between the passing and the rising generation is marked. Among other things the old hogans, with their elaborate ceremonial of dedication, are passing away, and are being replaced by houses modelled on the American plan. Such houses are a wide departure from the old ideas of the Navajos. They are rectangular in plan, sometimes with a board roof, and occasionally they comprise several rooms. In the mountain districts many of them are built of logs hewn square before being laid in place. Such houses render impossible the ceremonial of dedication, and the old rites are gradually falling into disuse.

The beliefs of the Navajos in regard to their dead for a long time prevented any departure from the ancient type. In the cañon country and especially where there are cliff ruins—which are regarded as sacred—the dead are placed in burial cists. These are generally constructed in a ruin. Out in the open country, comprising most of the Reservation, this is impracticable, and the hut

in which a man has died is pulled down over the remains and set on fire. After that nothing would induce a Navajo to touch a piece of wood from it, or even to approach the vicinity of the place. Even many years after they are able to recognize these *chindi hogans* or ghost houses, as they are called, and they carefully avoid them. This custom has much to do with the temporary character of the Navajo houses, for men are born to die and they must die somewhere. In recent years, however, the problem of how to build and retain more elaborate houses has been solved in a way which is simple but very satisfactory to the Navajos: when a man is about to die he is taken outside and allowed to breathe his last in the open air.

The remains of a Navajo hogan seem hardly comparable with the houses of the Pueblos, or even with the single-room remains which we call cliff dwellings. Some of the Pueblo tribes have been subjected to almost the same geographic environment as the Navajos, yet the house structures appear radically different. The Pueblo villages, however, are the direct outgrowth of just such lodges as the Navajos use, and the reasons why they have not advanced together lie principally in two causes—antecedent habits and personal character. With their habits as warriors and robbers, combined with their large flocks, which must be periodically moved from place to place, only temporary habitations were possible to the Navajos. On the other hand, most of the Pueblos came into the particular regions where they are found from other similar regions, where they had developed an elaborate system of house building admirably adapted to them. They were in no sense warriors, and all they asked was to be let alone. Dissimilar as the two peoples were, they would have come together had they been left undisturbed; in fact, they had already shown some signs of it, but the introduction of sheep by the Spaniards some 350 years ago emphasized the differences between them. The possession of sheep fell in exactly with the habits of the Navajos, but the pastoral life was impossible to the Pueblos, living as they did in fixed habitations from which they were afraid to venture far. They had sheep, which the Navajos periodically took away from them, but their main reliance for subsistence has always been on the cultivation of the ground. Under the strong arm of the Government, the two tribes are coming closer together. The most timid of the Pueblos are becoming more bold. They are gradually leaving their mesa fastnesses and are building individual homes in the valley below. Incidentally they are increasing their flocks and herds. On the

other hand, the Navajos are slowly taking up agriculture and show some disposition to form communities. Their flocks are decreasing and in a few years will no longer dictate the habits of the people. But as a house builder it is the old Navajo and not the Navajo of to-day who interests us.

In the vicinity of nearly every hogan will be found a primitive loom, upon which the woman of the house weaves the elaborate and gaudy blankets which have recently become an article of barter with the traders. Oddly enough, among the Pueblos the men are the weavers, but among the Navajos a woman is valued almost entirely for her skill in weaving, for blankets are a not inconsiderable asset of a household, and wool which is sold for five cents a pound readily brings forty cents when made into blankets. Not infrequently a loom is set up at some distance from the hogan, perhaps between two trees which are spaced about the required distance apart. Here the women live for a month or more at a time while an elaborate blanket is being made, the lord and master of the house in the meantime going off on a visit to his friends. Although marriage in the tribe is by purchase and a woman is bought from her family for so many horses, the rules of property obtain in her case as in that of the Pueblo women. Everything belongs to her except the horses and cattle. Not even a sheep can be sold to a passing traveller without her consent, and when sold the money received must be handed to her.

It is the medicine men who conduct the dedication of the hogans. This ceremony is regarded as having a very solemn significance by the elders of the tribe, although considered by the young people as principally an occasion for merry-making, as was the old Anglo-Saxon house-warming. It is believed that unless the rites are observed soon after the house is completed, bad dreams will plague the dwellers therein, toothache will torture them, their flocks will dwindle, ghosts will haunt the place, and the house will become tabooed, a place of evil. Accordingly, a few days after the house is built, arrangements are made with a medicine man to come and sing the house songs. For this he receives a good fee. Seating himself so as to face the doorway and the east, he sings a number of songs addressed to all the cardinal points, for in the Navajo system different groups of deities are assigned to each of them. This ceremony is known as the twelve songs, although in fact there are only two of them, each repeated twelve times. He prays for "male rain," such as accompanies thunder-storms, and for "young rains" or showers coming directly from the east. Both are regarded

as necessary to fertilize the soil. He prays also that the house may cover many "hard possessions," such as turquoise, coral and silver, and "soft possessions," such as blankets and buckskins. The ceremony, which commonly begins at nightfall, is prolonged by invocations to the sun and to the dawn, to the twilight, to the light and to the darkness, to the six sacred mountains, and to numerous other deities. Invocation is also made to evil things, to coughs and lung troubles, to the sorcerers, and to others, beseeching them to keep away. The whole ceremony is so timed that it is completed just as the first grey streaks of dawn appear, when the visitors get up their horses and ride home.